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A
FEW FACTS AND OBSERVATIONS
ON THE
YELLOW FEVER
OF
THE WEST INDIES.



A
FEW FACTS
AND
OBSERVATIONS
ON THE
YELLOW FEVER
OF
THE WEST INDIES,

BY WHICH IT IS SHEWN,
THAT THERE HAVE EXISTED TWO SPECIES OF FEVER
IN THE WEST-INDIA ISLANDS FOR SEVERAL YEARS
PAST, INDISCRIMINATELY CALLED YELLOW FEVER,
BUT WHICH HAVE PROCEEDED FROM VERY DIFFER-
ENT CAUSES.

WITH
THE SUCCESS ATTENDING THE METHOD OF CURE.

BY JAMES ANDERSON,
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MEMBER OF THE ROYAL PHYSICAL SOCIETY OF
EDINBURGH, AND LATE SURGEON TO
HIS MAJESTY'S 60TH REGIMENT
OF FOOT.

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UNIVERSITY
OF BRISTOL
MEDICINE

A

FEW FACTS AND OBSERVATIONS

ON THE

YELLOW FEVER

OF

THE WEST INDIES.

THE dreadful ravages which the disease generally known by the name of the YELLOW FEVER, has of late years made in the West-India Islands, and America, has very much, and very deservedly, attracted the attention of the Medical World.

A number of authors have successively attempted to account for the late mortality occasioned by it, and each has particularly stated his own theory of the disease, and recommended, in the strongest manner, his own treatment. But as every one who has written on this subject, seems to differ very materially from the rest in the method of cure ; and as facts *alone* can direct us, with respect to the most successful means of combating this dreadful malady, I shall, in the sequel, state the observations I have made on this disease, with the practice I have found most successful, after many years residence in the West Indies ; having had, during that time, opportunities of seeing the disease in all its forms ; and of trying, and seeing tried by others, the different modes of practice which have been most recommended.

As I now find, that my state of health
would

would not permit me to revisit that country, I should think myself deficient in my duty to the Medical department, not to state the mode of treatment I latterly pursued with such remarkable success ; and if I can either confirm the practice of others, or establish that which succeeded with myself, as superior to all other means, it will afford me very great consolation.

In this short Essay, I shall carefully avoid all theoretical disquisitions, as facts, in my opinion, are what we are solely to be directed by, in combating this disease ; theory having been found of very little use hitherto, in pointing out any proper method of cure.

I shall now describe the symptoms, which most generally occur in Yellow Fever of the West Indies.

The disease generally commences with universal lassitude and debility ; and in some

cases the patient suddenly falls down insensible, and remains so for several minutes ; pains in the back and loins, and over all the limbs, but particularly in the calves of the legs ; violent headach, with pain, especially over the orbits, and affecting the eye-balls ; a most uneasy sensation at stomach, attended with pain on pressure, with nausea, and inclination to vomit. If vomiting ensues, what is first brought up is generally nothing more than what had been drank, mixed with phlegm, and a thick, ropy, whitish matter, unless where an emetic had been exhibited ; and in that case, great quantities of bile was forced through the pylorus, in the action of vomiting *.

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* In many cases large lumbrici, to the number of two or three, were discharged from the stomach in the action of vomiting. This occurred in a drummer, who had been accustomed, for some time before, to drink vast quantities of rum, generally undiluted, and who, to my great astonishment, recovered. About eighteen months since, I saw him in Guernsey, in a state of total anasarca.

The face appears remarkably flushed, with inflamed eyes, which at the same time have a watery appearance, and are unable to bear the light.

The thirst is generally considerable, yet the tongue is tolerably moist, but white and tremulous.

The breathing is short, hurried, and oppressed ; with insupportable anxiety, sighing, and depression of spirits, the patient every now and then tossing, and throwing himself from one side of the bed to the other.

The pulse is quick, generally full, and soft, often unequal.

The skin gives a hot burning sensation, when the finger is applied, although it be not unusually dry or parched.

The belly is generally costive.

Delirium is an almost constant attendant on this disease ; and after the second day, a
 comatose

comatose state often supervenes ; sometimes earlier.

The urine is always voided in small quantities, and of a high colour ; accompanied with a sense of burning along the urethra. After twenty-four hours, or from that to forty-eight, many of the symptoms change their appearances.

The pulse continues quick, but weaker, tremulous, generally irregular, and sometimes intermitting.

The countenance acquires a yellowish appearance ; the tunica conjunctiva has now changed from a red to a yellow, and the upper part of the breast and neck are deeply tinged of a yellow colour.

Vomiting now becomes very frequent ; and what is brought up is extremely acrid, excoriating the throat and fauces as it passes, consisting mostly of a thick ropy stuff, of a

blackish colour ; and at last, there is a free and copious discharge of a fluid, greatly resembling the grounds of coffee. This has got the name of Black vomiting. From this stage of the disease I never saw one recover.

Several instances are, however, mentioned by authors, of recoveries even after black vomiting has taken place ; but it is to be remarked, that there is a vomiting of a dark-coloured bilious matter, often happens on the first days of the disease, and, in mild cases, even through the different stages of it, which I believe has often been mistaken for the other. This, however, has not the extremely fetid smell, nor appearance of putridity, which accompanies the real black vomiting ; and I really should suppose, from the seemingly putrid state of the whole mass at this period of the disease, that a recovery would be next to an impossibility.

On

On the second or third day, hiccup is a very frequent symptom, and extremely distressing to the patient.

Subsultus tendinum generally occurs in the advanced stage of the disease ; and I have seen several instances of a paralytic affection continuing during the convalescent state.

Sometimes eruptions were observed about the angles of the mouth and lips ; but they were generally a bad symptom, unless they broke out after a favourable crisis ; and in that case, they had more of a dry scabby appearance. In the last stages, the fæces were generally passed involuntarily, nearly resembling what was vomited ; and of a most offensive smell, excoriating the anus and neighbouring parts.

The tongue has now a black chopped appearance, extremely dry and parched. At
this

this period, bleeding takes place from different parts, particularly from the nose, gums, and anus ; and blood is sometimes discharged with the urine.

Petechiæ also make their appearance on different parts of the body, particularly on the neck and breast*.

The fatal catastrophe now draws near, the vomiting becomes almost incessant, and the miserable sufferer, being nearly exhausted, a convulsive struggle generally terminates this distressful scene.

I have, in this history of the disease, endeavoured to enumerate all the symptoms

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* A late author, Dr Chisholm, says, he never saw a patient with this symptom recover. I can venture to say, I have seen several. In one patient, an officer of the 60th regiment, they appeared in great quantities, on the third day of the disease, on the breast and neck. He recovered, but the cure was very tedious, as he was left in the most debilitated state ; and for many weeks after, his skin was of the deepest yellow. Indeed he did not completely recover, till he returned to England, which he did soon after.

that came under my actual observation. It is, however, to be observed, that practitioners will seldom meet with all in any one case ; as some persons have the disease in a milder degree than others ; but I think it necessary to be particular in the description, as in the worst cases most of the symptoms enumerated will occur.

It is no uncommon thing, in this disease, to see cases, where very uncommon exertion takes place a very short time before death ; and patients will sometimes sit up, and speak in a tone of voice, as if they had been much better, and even walk across the room, without support, with seeming firmness, till they suddenly fall down, perhaps to breathe their last, or can scarcely be carried to their beds before the fatal event takes place. But there is always something in the countenance and eye of such patients, (which it is impossible

fible

sible to describe, as it can only be discriminated by frequent observation of persons in that situation), which fortells; that the period of existence is limited to only a very few hours, perhaps minutes : and the pulse, upon examination, is then found to be extremely sunk and intermitting.

Deafness is often an attendant upon this disease, and frequently continues during the state of convalescence:

Swellings of the parotid and submaxillary glands were by no means unfrequent, and were often very troublesome *.

From what I have seen of the fevers of

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* I had one case, where the parotid, and submaxillary glands swelled, till they covered entirely one side of the head and neck with a hard tumor. Every thing was tried first to disperse, and when that was found impossible, to bring it to suppuration; but in vain. At last, symptoms of mortification took place, and an immense portion sloughed off, leaving the carotid arteries perfectly exposed, and surrounded with vast quantities of maggots. A few hours after the patient died.

the West Indies, I am of opinion, that for some years past there have been two different species at the same time, among the different islands, viz. the proper remittent of the West Indies, commonly called Yellow Fever, which is not contagious ; and a fever highly contagious, which is described by Dr Chisholm, under the name of the Boullam Fever, and nearly corresponds with the contagious malignant, which I have observed. In order to illustrate the fact, I shall select one instance of each kind, and shall here describe them.

In 1793, when I was stationed in the island of Montserrat, with a detachment of the 3d battalion, 60th regiment, I was one night called out of bed, to see a Corporal Benson, whom I found very ill, with all the symptoms of fever. One of his companions happened to mention, that he was
taken

taken ill in the same way as one of the privateer's men he had lately been with ; and upon inquiring into the matter, I found, that Benson had, two days before, been passing by a house, in which he observed a sailor, lying upon a bed, seemingly in great distress. Humanity led the corporal to render all the assistance in his power to the dying man ; and he had only remained with him about half an hour, when the sailor expired in the arms of this benevolent soldier.

I am sorry to add, that the poor corporal shared the same fate, on the 5th day of the disease.

I was much struck with this sudden event, but was seriously alarmed next morning, when I found two of the corporal's companions, who had been particularly attentive to him during his illness, taken in the same way.

way. There remained now no doubt, that there was a contagious disease in the barrack ; and it was further confirmed, by two or three being taken ill, every subsequent day, with all the symptoms of fever.

At this time, I had heard of no contagion in the other islands; but I very soon learned, that it was prevalent in several of them, particularly Grenada, Antigua, and St Christopher's.

It continued to spread through the barrack with the greatest rapidity, till scarcely a man of the detachment escaped the infection ; and I lost nearly one seventh of the whole who had the disease.

My mode of treatment was that recommended by authors of the first eminence, who had, previous to this period, treated of West-India diseases ; but I must confess, it by no means answered my expectations.

I soon after this learned, that the Medical Gentlemen in the other islands, had been equally or more unsuccessful than myself; and a great proportion of the men of the privateer that imported the infection died, during their stay at this island, although attended by one of the most skilful practitioners of the place.

Several of the inhabitants likewise caught the fever, (some of whom died), evidently, in my opinion, from the contagion originally imported in the privateer; which, if I am not mistaken, had last touched at Grenada, and had, most probably, brought from that island the fever described by Dr Chisholm.

From the situation of the town of Plymouth in Montserrat, it is perfectly impossible that it could be affected with any marsh miasmata. It lies in a small bay with a sandy beach on each side of it; and there is a gradual ascent from it to the mountains, which are to windward

ward of the town, and from which a fine cooling breeze constantly blows, which renders it perhaps the most healthy spot in the West Indies *.

This I mention to prove, that the present Fever originated from no other cause than contagion.

The other species of Fever, the proper remittent of the West Indies, the worst kind of which gets the name of Yellow Fever, I had an opportunity of particularly observing in 1796, in the Island of Tobago, when surgeon to the 4th battalion, 60th regiment.

Fort King George, in which we were stationed, is situated on a high hill, commanding the town and harbour of Scarbro', in a bay to leeward of it. To windward of the fort, there are considerable tracts of low
swampy

* At the Ridge in Antigua, a remarkable dry healthy situation, the 21st regiment lost a great proportion of officers and men.

swampy grounds; and as we know from many facts, that marsh miasmata can be carried to a very considerable distance, and even to remarkable high situations, we can easily suppose the marsh miasmata to be translated by the constant trade-wind, along the gradual ascent, from those swamps, to Fort King George, and there occasion the frequency of this Fever, on that situation.

This is farther confirmed by that part of the town which lies at the foot of the hill, immediately under the fort, being much more healthy than the fort itself, although the air is much hotter in the town; and it is in a great measure deprived of the refreshing breezes, which keep the air at the fort moderately cool. Which circumstance I would thus account for, that the miasmata were carried over by the current of wind,

confiderably above, and beyond the town, and of courfe could not affect it.

Although great numbers were attacked with this Fever, yet I never could perceive any marks of the difeafe being propagated by contagion ; and I could only impute its prevalence to the men being expofed to the action of the marfh miasmata.

I confider, therefore, thefe two fpecies of Fever, as evidently originating from different occafional, or exciting caufes ; and differing materially in this circumftance, that the former kind is highly contagious ; and in numberlefs inftances of the latter, I never could trace it to have been communicated in that manner. But notwithstanding this very material difference, yet it will be found, that the manner of attack, and the progrefive fymptoms, are not fo effentially different, as one, *a priori*, would have expected ; and

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the observeable differences, are by no means of that importance, as to induce us to follow different methods of cure ; on the contrary, I am of opinion, that there is one grand object to be held in view, in almost every Fever of the West Indies, viz. proper evacuations downwards ; and if that practice is pursued in a requisite manner, at an early period of the disease, I have every reason to think, it will be attended with the happiest effects, as I shall shew, in an after part of this paper, attended my practice.

I shall here, however, take notice of the principal differences worthy of observation.

The patient was not, in general, attacked in that sudden manner by the action of marsh miasmata, as by the action of contagion ; and the Fever, when it arose from the action of marsh effluvia, was, in most cases, spun out to a greater length ; and the yellowness

of the skin was, I think, more general, in almost every case, and of a deeper tinge than when from contagion. The pulse was much the same in both cases, and admitted of the same variations. Although the stomach possessed the same degree of irritability in both, yet the black vomiting did not appear, till later in the disease, from marsh effluvia.

It has been already hinted, that free evacuations of the intestinal canal, is of the greatest importance towards the cure of every Fever in the West Indies. On the present occasion, the cure was chiefly attempted by such means, and the garrison-surgeon, and myself, employed different purgative medicines, with considerable success.

A short time after this, I had an opportunity of experiencing the good effects of calomel, conjoined with James's powders, as
superior

superior to every other medicine I had tried; and in which I would place the greatest dependance, in the cure of this dreadful scourge of our army in the West Indies; and the treatment, I am convinced, will be equally successful in both species of Fever.

In July 1796, the 4th battalion, 60th regiment, was drafted into the 3d battalion, which relieved the 4th at Tobago; and the officers and non-commissioned officers, with a number of men labouring under chronic complaints, sailed with the fleet in small vessels to Tortola, and there embarked on board the *Fanny* transport, to sail with the convoy for England.

On the 28th of July, we sailed from Tortola with the fleet, under convoy of the *Hebe* frigate, with ten officers, and near one hundred, men, women, and children, on board.

board. One of the schooners, with the remainder, having separated from the fleet, soon after we left Tobago, got to St Kitt's, and there embarked on board of another transport for England.

During our stay of a few days at Tortola, Lieutenant A. had been on shore, and had taken more exercise, by walking in the town, where the heat of the air is excessive, than he had been accustomed to. He dined in the tavern, in company with several officers, belonging to different regiments, but slept on board the transport in the bay.

On the following day, he was much alarmed to hear, that one of the officers he had dined with the preceding day was dead ; and it seemed to depress his spirits a good deal *. A Fever was at this time on board of

* Upon inquiry, I learned, that this officer, who had been at the time in a state of convalescence from a bad Fever, was seized suddenly in the night, and was carried off in a few hours.

of several ships of the fleet that came from Grenada, and had been fatal to some officers, during our short stay at Tortola. This circumstance had alarmed the inhabitants, and the tavern where the above-mentioned officer died, after his death, was totally deserted.

At this time we had not a man sick in our transport.

On the day we sailed, which was two days after the death of the officer already mentioned, Lieutenant A. complained of being rather indisposed, which I thought might be owing to the fatigue he had taken on shore, having been only a few weeks recovered from a dangerous and tedious remittent Fever at Tobago. I was, however, much surpris'd next morning, to find him much worse, with the most despondent looks, low, quick, vascillating pulse, universal

fal lassitude and debility, hurried respiration, with frequent sighing, inflamed watery eyes, constant nausea, with most of the other bad symptoms I have already described.

From Lieutenant A.'s having been under my care before, I knew he would be a very troublesome patient, having formerly found it almost impossible to prevail upon him to take any medicine. At this time, however, I persuaded him to take some James's powder, which operated downwards; but, notwithstanding this, all his symptoms increased very rapidly, till the fifth day, on which there having previously occurred *black vomiting*, and all the phenomena of the very worst species of Fever, he died.

As the officers cabin was remarkably small, and crowded, (most of them being obliged to lay their matresses on the floor, and the ship, having been originally built
for

for the North Seas, the air was only admitted by small stern-windows), I judged it proper to have Lieutenant A. moved to a part of the ship, where he might breathe cooler and more refreshing air.

Very fortunately, the apartment betwixt decks, which the men occupied, was high, roomy, and well aired; and as we had so few persons on board, there was a considerable space under the forecastle, altogether unoccupied; this, I caused to be fitted up for Lieutenant A. and left a considerable space betwixt him and the first of the men's berths.

As soon as I was satisfied of the nature of the disease we had on board, my attention was turned to the most probable means of preventing the spreading of the *contagion*, which from the appearance of the disease I had reason to dread.

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As soon as Lieutenant A. had breathed his last, I had the body moved on deck, and laid on the forecastle, preventing any of the men from going to that part of the ship, during the time it remained there. The berth between decks, in which he died, I ordered immediately to be well washed out, and afterwards frequently sprinkled with vinegar, taking care that all his bedding should be thrown overboard.

Notwithstanding all these precautions, I must confess, my apprehension continued for some time very serious, knowing that an infectious fever, on board a ship at sea, and at the commencement of a long voyage, would be attended, in all probability, with great fatality.

More than a week had elapsed, however, without any appearances ; and my fears began gradually to subside.

Within

Within fourteen days from our weighing anchor, we had got into what is generally called the Calm Latitudes, which, I believe, is from 27° to 30° ; and there we remained near fourteen days, making little or no way, under as severe a heat as ever I experienced in the West Indies, indeed I think more unsupportable than I had ever felt.

The weather had scarcely set in so remarkably calm and sultry, when a man was reported to me sick; and on my going between decks, my apprehensions were again roused, by observing, that the berth in which the man lay, was the nearest to where Lieutenant A. had died; and on examining the state of the patient, I had every reason to dread, from the symptoms, that the Fever would prove of the same kind.

I had scarcely time to deliberate on the plan I should adopt, when the man next to

him was taken ill, and next morning two more in the contiguous berths ; so that I had now no room left for doubt, that the Fever was infectious, and had every reason to fear, that it had originated from Lieutenant A. and would prove of a bad kind.

It was now full time to settle my plan of treatment ; and as nothing appeared to me more likely to be of use in this Fever, than to evacuate the intestinal canal, in a speedy and effectual manner, I immediately began by giving calomel ; not, however, with a view of inducing salivation, as some late authors have practised, but principally as a purgative, which can be exhibited in small compass, and as a medicine, which seems in a wonderful manner to operate, in removing obstructions, and other diseases of the viscera, and particularly those of the liver. With a view of likewise determining to the
surface,

surface, I conjoined James's powder, and it likewise had the effect of quickening the operation of the calomel*.

In this manner, I began with those who were first attacked, and my astonishing success prevented me from adopting any other practice. I was often obliged to repeat the medicine a second, and even a third time, in the course of twenty-four hours; and I generally found, that by keeping up a free discharge for the first forty-eight hours, I was so happy as to procure a considerable remission; but I did not allow it to rest there, for I experienced, that unless I still kept up a free determination downwards, all the symptoms returned.

Judging,

* R. Calomel, gr. v.

Pulv. Jacob, gr. vij.

Conf. cordiac. q. s. ut f. bol.

Omni tertia hora repetend. donec alv. plene respond.



Judging, *a priori*, a person would be apt to suppose, that free evacuations downwards would very much debilitate the patient, in that hot climate ; but the sensation of the patient is quite the reverse, as he feels himself wonderfully relieved, after a few evacuations ; and is by no means so depressed with languor, and anxiety, as before the operation of the medicine.

I found nothing so effectually removed the great irritation at stomach, which is so much to be dreaded in this disease, as the operation of those medicines ; and the James's powder had likewise the effect of bringing on a free and equal perspiration.

Every morning, when I got up, I was sure of being informed, that several more were taken sick ; and in this manner, the Fever went completely round the men's berths ; and within the short space of three weeks,

weeks, about seventy men and women were attacked with it.

The first symptoms of the disease came on very suddenly, and with great violence. The head particularly seemed to be affected, and excruciating pains in the back and legs, made the patient's situation almost unsupportable. In one case, the excruciating pain in the forehead remained, for several days, after the Fever had completely subsided.

In about half an hour after the exhibition of the medicine, the patient frequently had one or two gentle pukes; and brought up what liquids the stomach contained, with often a ropy viscid matter; and generally very soon after, the medicine caused a determination downwards, which always seemed to bring about great relief, by inducing large and extremely putrid bilious evacuations.

By

By being on shipboard, I had a very great advantage, which we cannot always have on shore, viz. having it in my power to prescribe for my patients on the hour of attack ; indeed the disease was so severe at its onset, that the person seized had it not in his power to conceal his condition from the serjeants on duty, who immediately reported to me.

I am convinced, that a great deal depends on an early exhibition of medicine in this disease ; for it in general runs its course with such rapidity, that not a moment is to be lost ; and the delay of a few hours, will often render fruitless every attempt to save the life of the patient *. The commanding-officer

* It is a common practice among soldiers to conceal their complaints as long as possible ; and every commanding-officer in the West Indies should be very particular in enjoining strict orders with respect to such men as are taken sick in barrack, as much may be done on the first attack.

officer on board, whose careful anxiety for the sick was very conspicuous*, consulted me about every possible means to prevent the contagion from spreading; and every thing we had in our power was put in practice, such as frequently fumigating the vessel with gun-powder, burning pitch, washing with vinegar, &c. but in spite of every means, the disease made a complete circle.

I have already mentioned the confined state of the officers cabin, and on that account three of them chose rather to fit up berths for themselves at one end of the men's apartment, and all the three were attacked with the disease. In one of them, a German, a wonderful degree of despondency took place, from the commencement of the disease. He had just arrived from England, to join the regiment, at the time it was

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* Major Martin, late of the 60th regiment.

ordered home ; and consequently had not the same chance of recovery, as men who had been inured to the climate, like most of ours. He had nearly all the symptoms as Lieutenant A. and died on the seventh day of the disease.

I am happy in saying, that here my list of deaths terminates, as, by pursuing the successful mode of treatment already mentioned, I was fortunate enough not to lose another patient *.

The recoveries, in general, were much more rapid than I could possibly have expected, considering the severity of the attacks ; and I found, in the convalescent state,
that

* Mr Bryce, formerly surgeon of the Busbridge East India man, has given an account of a Fever that raged on board of that ship on her passage from India ; in which he used calomel with great success, as an evacuating medicine.

that small doses of bark, keeping at the same time the belly gently open, was of service.

Only one patient out of the whole was salivated by the calomel, and his recovery was more tedious than the rest. Upon the whole, I attribute my great success in the treatment, to having it in my power to combat the disease from the very first attack, and giving every medicine with my own hands, so as always to be certain, that the full quantity of the medicine had been taken ; for if the administration of it is left to nurses, one never can ascertain this point ; and I am convinced, that whoever has the same opportunities that I had of acting at the commencement of the disease, and pursues the same plan of cure, will find his practice equally successful ; for I am of opinion, that there is no remedy, as yet recommended, so likely to prevent the dreadful conse-

quences of this Fever, as a combination of calomel and James's powder.

At the same time that the Fever raged on board of our transport, several ships in the fleet likewise suffered, particularly the Hebe frigate, our convoy. I was under the necessity of going on board of her, to solicit a supply of calomel, and was informed by the Captain, who seemed exceedingly anxious to have every thing done for the comfort of the sick, that he had already buried the surgeon and several of the crew, and that the Fever was then raging on board to a great degree. Unfortunately at this time I had not given a fair trial to the calomel, of course could not recommend it.

During the short time I remained on board the Hebe, I saw them busily employed using the cold bath, but I afterwards understood, that they lost a great many men

on

on the passage ; and were obliged to ride quarantine, when they arrived at Portsmouth.

With respect to the cold bath, I confess I have never tried it myself ; but I have seen it employed in the West Indies, in several instances ; and I never could perceive any good effects from it. I see, in a publication by Dr M'Lean, much praise bestowed on the use of the cold bath, preceded by the warm bath ; but, at the same time, I observe, that the very same remedies were made use of that I employed, viz. calomel and James's powder ; and I must confess, that I attribute the success rather to those medicines, than the dashing cold water on the patient.

Of all the antimonial preparations, I give the preference to James's powder, as the most to be depended on, in its operation.

To

To the pulvis antimonialis, I have given fair and repeated trials ; it is certainly a useful preparation, but I must say, I have found it a medicine rather uncertain in its operation ; and I could seldom give more than three or four grains, without occasioning violent effects, and I have found even that quantity exceed my wishes in its operation. This I mention, to caution young practitioners against giving it in the same proportion as James's powder, for there is certainly a considerable difference in the effects, as well as in the preparation of those medicines.

In the low comatose state of this disease, I have observed good effects from blisters, applied to different parts of the body, particularly the inside of the legs and thighs ; and in the early stage of the disease, when applied to the pit of the stomach, they often

often had the effect of removing the irritable state of that organ.

When hiccup occurs, I have seen nothing of so much service as effervescent draughts, given occasionally.

I have in some cases given camphor with advantage ; for though it is in general reckoned rather a nauseous medicine, I have seen it repeatedly sit easy on the stomach, when nothing else would. I gave it in the form of julep.

I have never seen any benefit from opium in this disease ; on the contrary, I think it frequently does harm, by inducing a more irritable state of the stomach, and checking evacuations downwards, which it is of such consequence to procure.

Emetics in this disease ought perhaps *never* to be used ; and Tartar emetic, particularly, is an uncertain and dangerous medicine

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cine in this Fever, as it wonderfully increases the irritable state of the stomach.

I have myself never employed blood-letting in this disease, but I have been informed by experienced and candid practitioners, that they have given it the fairest trials, but evidently without good effects. Upon the whole, I think this remedy should never be employed, but in such cases where the person attacked is very lately arrived from a northern climate, and of a full habit of body, and sanguine temperament ; and even in patients of that description, one bleeding is all that can be necessary, and the quantity of blood taken away should not exceed eight or ten ounces.

In the latter stages of the disease, and after free evacuations downwards, wine will be of service ; particularly good Madeira, to the extent of a pint in the twenty-four hours,
but

but I have never seen good effects from a larger quantity.

In the convalescent state, a light nourishing diet is necessary, with moderate exercise in the shade, or in the morning and evening ; and a proportion of wine and porter is absolutely required ; the latter of which I reckon in general a very wholesome drink in the West Indies, to the extent of a pint twice a-day.

DOCTOR JACKSON, in his Treatise on Fevers, is of opinion, that Europeans, in warm climates, should be accustomed to use a great deal of exercise, by walking, even in the hottest time of the day ; and that they may even take great fatigue without suffering any further inconvenience from it ; and he brings instances of his own journies on foot, to prove that no bad effects can attend it. I think proper to take notice of this,

as it is directly contrary to all the observations I have made, or heard made by others, during a residence of many years in the West Indies. I do not deny, that moderate exercise is perhaps as necessary for health in a warm climate as in Europe ; but I am decidedly of opinion, that severe exercise or fatigue in tropical climates, will sooner or later, according perhaps to the strength of the person, be attended with seriously bad consequences ; and I have seen innumerable instances of violent attacks of Fever, which could be distinctly traced to bodily exertion or fatigue.

I AM extremely sorry to differ from such a respectable author as Dr Jackson ; but, contrary to his advice, I would recommend, that soldiers should always be exercised in the cool of the mornings and evenings, as it will be time enough to try their strength, in
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the heat of the sun, when they are called out to actual service ; and I am persuaded, from experience, that they will be the better able to bear fatigue, from not having been previously debilitated, by unnecessary exposure to the scorching influence of the sun.

And if Europeans are ever to be familiarised to daily fatigue in that climate, it must be brought about in a very gradual manner, and after many year's residence in the country ; for it has been proved this war, by woful experience, that troops newly arrived from England have little chance of combating the climate, for any length of time, when immediately put on actual service.

Before concluding this short Essay, I would beg leave to mention, that as Government has lately acted in such a liberal

manner to the foldier, by generously increasing his pay in fuch a proportion, the army in the Weft Indies, might, I think, be confiderably benefited by appropriating a certain part of the foldiers pay, to render their fituation more comfortable, and at the fame time add to their health.

The advantage of rations, to a common foldier, is confiderable ; and they were formerly fufficient, with a fmall addition of pay, to make them live tolerably well.

I would now, therefore, humbly propofe, that a fufficient proportion of the increafe of their pay fhould be applied, together with the money they raife, by difpofing of part of their falt rations, to purchafe frefh provifions for the men. Different kinds of frefh meat and fifh can be procured, in moft of the iflands, pretty reasonably ; and in almoft every fituation, vegetables of different kinds

kinds can be purchased ; so that a soldier might be made to live as well and comfortably, as the middling ranks of people, in any country whatever.

Particular attention should, I think, be paid to breakfast, which is often too much neglected in regiments. Coffee and cocoa can be had at moderate rates, in the different islands ; and a good breakfast would often prevent the men from falling on schemes to obtain spirituous liquors, and thereby injuring their constitutions. I likewise think, if Government would send out quantities of porter, and issue it alternately for rum, it would be attended with manifest advantage to the health of the soldier.

With respect to flannel shirts, which have been so much recommended of late years, I am of opinion, that in all situations where actual
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service is expected, flannel shirts are of the greatest benefit ; as, by keeping up an equal and uniform perspiration, in different degrees of heat, they prevent diseases, which are the almost certain consequences of that discharge being suddenly checked, by exposure to currents of air, in the day-time, or the damps and heavy dews of the night. But whenever men are stationed in barracks, or in situations where there is no prospect of their being moved for some time, I would rather recommend calico shirts, as sufficiently calculated to absorb the perspiration, and at the same time serve to keep up a general friction on the surface, without the disadvantage of adhering to the skin like linen, or confining the heat too much, when the body is at rest, like flannel. Upon the whole, I think linen should be laid aside for

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the use of the troops in the West Indies, and calico adopted in its room ; particularly as it is no additional expence, and seems better calculated for warm climates, as is evinced by the inhabitants of the East.

